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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/633,123

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Victor L. Gonzalez

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10/07/2004

HEWLETT-PACKARD COMPANY

Intellectual Property Administration

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EXAMINER

STEPHENS, JUANITA DIONNE

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 10/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/633,123		GONZALEZ, VICTOR L.	
	Examiner		Art Unit	
	Juanita D. Stephens		2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed 6/29/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 56 is/are allowed.
- 6) ☒ Claim(s) 36-39, 42, 43, 46, 47, 49-53 and 55 is/are rejected.
- 7) ☒ Claim(s) 40, 41, 44, 45, 48, 52 and 54 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-35 canceled.

Oath/Declaration

1. The specification to which the oath or declaration is directed has not been adequately identified. See MPEP § 602.

Specification

2. The disclosure is objected to because of the following informalities:

The Specification does not disclose the continuing information after the Title.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 36-38, 42, 46-47, 50-51, 53 and 55 are rejected under 35 U.S.C. 102(B) as being anticipated by Komuro (US 4,965,594).

Komuro discloses a method for ejecting fluid from a firing chamber, a resistor arrangement for an inkjet printhead (Fig. 3), and an arrangement of ejecting fluid, the method and resistor arrangement comprising: **1)** at least one inner resistor/driver (heater 21A) adapted to create a first drive bubble for ejecting a first drop of ink from the inkjet printhead (col 4, Ins 17-21, Ins 46-51, Fig. 2 and Table 1), **2)** at least one outer resistor/driver (heaters 11A and 31A) generally surrounding the inner resistor, the inner resistor and the outer resistor together being adapted to create a second drive bubble

for ejecting a second drop of ink from the inkjet printhead, the inner resistor/driver being adapted to create the first drive bubble independently of the outer resistor/driver, the second drop of ink being larger than the first drop of ink (col 4, Ins 17-21, Ins 46-51, Fig. 2 and Table 1), **3)** wherein the inner resistor and the outer resistor are electrically connected, **4)** wherein the inner driver comprises an inner resistor (heater 21A) (col 3, Ins 59-61) and the outer driver comprises an outer resistor (heater 11A and 31A)(col 3, Ins 38-39, Ins 65-66), **5)** wherein the inner resistor and the outer resistor are arranged such that the first drive bubble is generally centered over the inner resistor (as shown in Fig. 1), **6)** wherein the inner resistor and the outer resistor are arranged such that the second drive bubble is generally centered over the inner resistor (as shown in Fig. 1), **7)** comprising a first and second switching devices (electrodes 12, 22, and 32), operably coupled with the inner and outer resistors, for selecting the inner and outer resistor (col 3, Ins 39, 59-61, and 65-66), **8)** creating a first drive bubble, using at least one first resistor, for ejecting a first drop of fluid from the firing chamber, the first drive bubble being generally centered over the first resistor, and creating a second drive bubble, using the first resistor and at least one second resistor for ejecting a second drop of fluid from the firing chamber, the second drive bubble being larger than the first drive bubble and being generally centered over the first resistor ((col 4, Ins 17-21, Ins 46-51, Fig. 2 and Table 1), **9)** wherein creating the first drive bubble occurs independently of the second resistor (col 4, Ins 17-21, Ins 46-51, Fig. 2 and Table 1), and **10)** means for creating a first drive bubble (heater 21A), for ejecting a first drop of fluid from the ejection device, and means for creating a second drive bubble (heaters 11A and 31A)

for ejecting a second drop of fluid from the ejection device, the second drop of fluid being larger than the first drop of fluid, the means for creating the second drive bubble being electrically connected to the means for creating the first drive bubble, wherein the means for creating the first drive bubble creates the first drive bubble independently of the means for creating the second drive bubble (col 4, Ins 17-21, Ins 46-51, Fig. 2 and Table 1).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 39 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komuro (US 4,965,594) in view of Tachihara (US 5,481,287).

Komuro discloses a method for ejecting fluid from a firing chamber, a resistor arrangement for an inkjet printhead (Fig. 3), and an arrangement of ejecting fluid, the method and resistor arrangement comprising: **1)** at least one inner resistor/driver (heater 21A) adapted to create a first drive bubble for ejecting a first drop of ink from the inkjet printhead (col 4, Ins 17-21, Ins 46-51, Fig. 2 and Table 1), **2)** at least one outer resistor/driver (heaters 11A and 31A) generally surrounding the inner resistor, the inner resistor and the outer resistor together being adapted to create a second drive bubble for ejecting a second drop of ink from the inkjet printhead, the inner resistor/driver being adapted to create the first drive bubble independently of the outer resistor/driver, the

second drop of ink being larger than the first drop of ink (col 4, Ins 17-21, Ins 46-51, Fig. 2 and Table 1), **3)** wherein the inner resistor and the outer resistor are electrically connected, **4)** wherein the inner driver comprises an inner resistor (heater 21A) (col 3, Ins 59-61) and the outer driver comprises an outer resistor (heater 11A and 31A)(col 3, Ins 38-39, Ins 65-66), **5)** wherein the inner resistor and the outer resistor are arranged such that the first drive bubble is generally centered over the inner resistor (as shown in Fig. 1), **6)** wherein the inner resistor and the outer resistor are arranged such that the second drive bubble is generally centered over the inner resistor (as shown in Fig. 1), **7)** comprising a first and second switching devices (electrodes 12, 22, and 32), operably coupled with the inner and outer resistors, for selecting the inner and outer resistor (col 3, Ins 39, 59-61, and 65-66), **8)** creating a first drive bubble, using at least one first resistor, for ejecting a first drop of fluid from the firing chamber, the first drive bubble being generally centered over the first resistor, and creating a second drive bubble, using the first resistor and at least one second resistor for ejecting a second drop of fluid from the firing chamber, the second drive bubble being larger than the first drive bubble and being generally centered over the first resistor (col 4, Ins 17-21, Ins 46-51, Fig. 2 and Table 1), **9)** wherein creating the first drive bubble occurs independently of the second resistor (col 4, Ins 17-21, Ins 46-51, Fig. 2 and Table 1), and **10)** means for creating a first drive bubble (heater 21A), for ejecting a first drop of fluid from the ejection device, and means for creating a second drive bubble (heaters 11A and 31A) for ejecting a second drop of fluid from the ejection device, the second drop of fluid being larger than the first drop of fluid, the means for creating the second drive bubble

being electrically connected to the means for creating the first drive bubble, wherein the means for creating the first drive bubble creates the first drive bubble independently of the means for creating the second drive bubble (col 4, Ins 17-21, Ins 46-51, Fig. 2 and Table 1).

Komuro does not specifically teach wherein the inner resistor/driver and the outer resistor/driver are electrically connected in parallel. Tachihara at least teaches a serial arrangement of the heating elements 401, 401 and 403 can achieve similar effects by the parallel arrangement of them. It would have been obvious at the time the invention was made to a person having ordinary skill in the ink jet art to modify Komuro by providing the parallel heater arrangement as taught to be old Tachihara for the purpose of enabling stable step control over the gradation of an image to be recorded without the need for complicated wiring.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claim 49 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 33 of U.S. Patent No. 6,729,715 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 49 of Application 10/633,123 is claim broader than claim 33 of US Patent 6,729,715 B2

claim 33 of U.S. Patent No. 6,729,715 B2

discloses:

A resistor arrangement of an inkjet printhead, the resistor arrangement comprising:

at least one inner resistor adapted to create a first drive bubble for ejecting a first drop of ink from the inkjet printhead

at least one outer resistor generally surrounding the inner resistor, the inner resistor and the outer resistor together being adapted to create a second drive bubble for ejecting a

claim 49 of Application 10/633,123

discloses:

A resistor arrangement for ejecting fluid, the arrangement comprising:

at least one inner resistor adapted to create a first drive bubble for ejecting a first drop of fluid,

at least one outer resistor generally surrounding the inner resistor, the inner resistor and the outer resistor together being adapted to create a second drive bubble for ejecting a

second drop of ink being larger than
the first drop of ink; and

second drop of fluid being larger than
the first drop of fluid; and

first and second switching devices,
operably coupled with the inner and
outer resistor, for selecting the inner
and outer resistors,

wherein the inner resistor and the outer
resistor are electrically connected in
parallel,

wherein the inner resistor and the outer
resistor are electrically connected ,

wherein at least one of the first and
second switching devices is
electrically connected with a barrier
formed of a shape-change material.

wherein at least one of the inner resistor
and the outer resistor is electrically
connected with a barrier formed of a
Shape-change material

Allowable Subject Matter

9. Claim 56 is allowed.

10. The following is a statement of reasons for the indication of allowable subject
matter:

The combination of creating a first drive bubble, using at least one first resistor, for ejecting a first drop of fluid from the firing chamber, creating a second drive bubble, using the first resistor and at least one second resistor for ejecting a second drop of fluid from the firing chamber, the second drive bubble being larger than the first drive bubble and being generally centered over the first resistor, and changing the size of the firing chamber depending on whether the first drive bubble or the second drive bubble is created. This invention solves the problem of providing for the dynamic variation of an expelled ink drop volume, which is highly desirable to obtain high print quality, while increasing the number of shading combinations that is achievable. Also provides a printhead, where it is not necessary to change the electrical pulse widths or vary the thickness of the protective layer in order to vary ink drop volume.

11. Claims 40-41, 44-45, 48, 52, and 54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 41 will be allowed when claim 40 is rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 45 will be allowed when claim 46 is rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

The limitation of wherein the outer resistor/driver is operably coupled with a barrier, wherein the barrier covers the outer resistor/driver during creation of the first

drive bubble, recited in claims 40 and 44. This invention solves the problem of providing for the dynamic variation of an expelled ink drop volume, which is highly desirable to obtain high print quality, while increasing the number of shading combinations that at achievable. Also provides a printhead, where it is not necessary to change the electrical pulse widths or vary the thickness of the protective layer in order to vary ink drop volume.

The limitation of wherein at least one of the first and second switching devices is electrically connected with a barrier formed of a shape-change material, recited in claim 48. This invention solves the problem of providing for the dynamic variation of an expelled ink drop volume, which is highly desirable to obtain high print quality, while increasing the number of shading combinations that at achievable. Also provides a printhead, where it is not necessary to change the electrical pulse widths or vary the thickness of the protective layer in order to vary ink drop volume.

The limitation of changing the size of the firing chamber depending on whether the first drive bubble of the second drive bubble is created, recited in claim 52. This invention solves the problem of providing for the dynamic variation of an expelled ink drop volume, which is highly desirable to obtain high print quality, while increasing the number of shading combinations that at achievable. Also provides a printhead, where it is not necessary to change the electrical pulse widths or vary the thickness of the protective layer in order to vary ink drop volume.

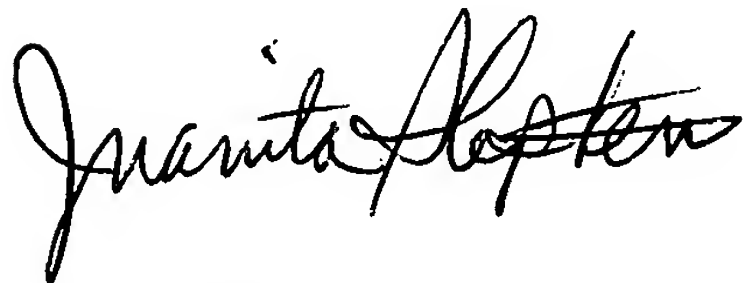
The limitation of means for changing the size of a fluid ejection barrier depending on whether the first drive bubble of the second drive bubble is created, recited in claim

54. This invention solves the problem of providing for the dynamic variation of an expelled ink drop volume, which is highly desirable to obtain high print quality, while increasing the number of shading combinations that are achievable. Also provides a printhead, where it is not necessary to change the electrical pulse widths or vary the thickness of the protective layer in order to vary ink drop volume.

Contact Information

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juanita D. Stephens whose telephone number is (571) 272-2153. The examiner can normally be reached on Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



10/04/04

Juanita D. Stephens
Primary Examiner
Art Unit 2853